

Amendments to the Claims:

This Listing of Claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-10 (canceled).

11. (new) A directly modulated optical module wherein optical output intensity of a semiconductor laser is modulated by changing a current allowed to flow into the semiconductor laser depending on a transmission signal, the optical module comprising:

a driver circuit providing the current with a trapezoidal waveform to the semiconductor laser;

wherein the trapezoidal waveform is characterized in that a rate of change in fall time of the current is greater than a rate of change in rise time of the current; and

the driver circuit is controlled so that a ratio of the rate of change in fall time divided by the rate of change in rise time is at least 1.3.

12. (new) A directly modulated optical module wherein optical output intensity of a semiconductor laser is modulated by changing a drive current allowed to flow into the semiconductor laser depending on a transmission signal, the optical module comprising:

a driver circuit providing the drive current which overshoots during a transient period associated with a rising edge of the drive current; and

a overshoot setting circuit generating a control voltage supplied to the driver circuit which is obtained by voltage division between a resistor and a thermistor provided in the overshoot setting circuit; and

wherein the driver circuit comprises:

a first current circuit generating a first current having a trapezoidal waveform under control of the transmission signal provided to the driver circuit;

a second current circuit generating a second current added to the first current to provide the drive current in the driver circuit; and

a control circuit detecting the rising edge of the drive current from the transmission signal, and controlling the second current circuit in accordance with the rising edge of the drive current; and wherein overshoot of the drive current is controlled by setting a value of the second current with respect to an average voltage of an optical output waveform in the second current circuit, and by limiting a period to add the second current to the first current within the transient period by controlling the second current circuit by the control voltage outputted from the overshoot setting circuit; and

a waveform of the drive current is shaped by the first current and the second current during the transient period, and otherwise by the first current.

13. (new) An optical module according to claim 12 wherein the control circuit generates a pulse having a width to match the rising waveform of the semiconductor laser and controls the second current circuit in accordance with the pulse.

14. (new) An optical module according to claim 12 wherein the overshoot setting circuit includes a buffer for converting the control voltage to an appropriate voltage.

15. (new) A directly modulated optical module wherein optical output intensity of a semiconductor laser is modulated by changing a current allowed to flow into the semiconductor laser depending on a transmission signal, the optical module comprising:

a driver circuit which, if no control signal is received, provides a current having a trapezoidal waveform corresponding to the transmission signal, wherein the trapezoidal waveform is characterized by having a fall time of the current at least as long as a rise time of the current; and

control means which outputs the control signal to the driver circuit, wherein the control signal controls the driver circuit to make the fall time of the output current shorter than the rise time of the output current, so that a ratio of a rate of change in the fall time to a rate of change in the rise time is at least 1.3.

16. (new) A directly modulated optical module according to claim 15 wherein the control means is configured by a voltage division circuit having a resistor and a

thermistor, and the rate of change in the rise time is reduced in accordance with a voltage obtained by voltage division between the resistor and the thermistor.

17. (new) A directly modulated optical module according to claim 16,
wherein:

the first current circuit is configured as a first differential amplifier circuit comprising first transistors driven by first emitter follower circuits, each of the first transistors and the first emitter follower circuits being controlled in accordance with the transmission signal provided to the driver circuit, and

the second current circuit is configured as a second differential amplifier circuit comprising second transistors driven by second emitter follower circuits, each of the second transistors and the second emitter follower circuits being controlled in accordance with the pulse generated by the control circuit.

18. (new) A directly modulated optical module according to claim 17,
wherein the second current circuit comprises a control transistor limiting the period to add the second current to the first current within the transient period with response to the control voltage provided from the overshoot setting circuit.